KERALA

A wheelchair that finds its own way

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Rajesh Kannan Megalingam, Assistant Professor of Electronics & Communications of Amrita University, who guided final-yeat B.Tech students Chinta Ravi Teja, Sarath Sreekanth, and Akhil Raj to put together the self-navigating wheelchair 'Self-E.'

3 final-year B.Tech students develop Self-E, a self-navigating wheelchair

Three final-year B.Tech students of Amrita Vishwa Vidyapeetham have developed Self-E, a self-navigating wheelchair that could safely take a user from one point to another avoiding obstacles on the way.

Compared to the imported self-driving wheelchairs that are expensive, the students have managed to produce the prototype at a cost below ₹1 lakh. Chinta Ravi Teja, Sarath Sreekanth, and Akhil Raj, the young students who designed Self-E, have been working for the last two years as junior researchers at Amrita Vishwa Vidyapeetham's Humanitarian Technology Lab.

"Self-E is unique in the sense that it is the first self-driving wheelchair in India built by the research lab of a university without any collaboration with foreign universities or companies. It now needs to be tested in different environments like hospitals and airports with patients and wheelchair users. The current version is a successful prototype and, with the help of Technology Business Incubator of Amrita Vishwa Vidyapeetham, we hope to commercialise the product," says Rajesh Kannan Megalingam, Asst. Professor of Electronics & Communications and Director of Humanitarian Technology Lab who guided the students.

Self-E uses Robotic Operating System (ROS) for autonomous navigation to create a map of the surrounding space, along with static and dynamic obstacles, using a laser sensor and displays it through a smartphone app. The user could then touch any point on the generated map, and the wheelchair will move to that place automatically without user intervention.

A touch on the map

"If users are able to operate a smartphone, they will be relieved from the continuous use of traditional joystick to steer the wheelchair. With a simple touch on the map displayed on the mobile screen, the wheelchair takes them to the destination. They could have complete control over the wheelchair without anyone's help. On the other hand, if some patients have a problem in using a smartphone, a friend or family member or assistant could use the Android App to transport them without the need to physically push the wheelchair," says Chinta.